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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,613	08/15/2001	Jorg Vortkort	VORTKORTETAL	2511

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POLYONE CORPORATION  
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EXAMINER
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CHEUNG, WILLIAM K

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/913,613

Applicant(s)

VORTKORT ET AL.

Examiner

William K Cheung

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 21-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-31 and 34-38 is/are allowed.
- 6) ☒ Claim(s) 21, 22 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 32 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The examiner acknowledges the receipt of amendment filed November 26, 2003.

Claims 21-38 are pending.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 21, 22, 24-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ouhadi et al. (US 5,843,577) for the reasons adequately set forth from paragraph 5 of non-final office action issued August 4, 2003.

The invention of claims 21, 22, 24-27 relates to a **thermoplastic vulcanizate** of four components (A, B, C, D), comprising

- a **thermoplastic synthetic resin (A)**;
- a substantially **non-cross-linked polyethylene (B)**;
- a **rubber (C)** having a degree of **cross-linking of > 90%**; and
- a **plasticizer (D)**;

as well as of **standard blend ingredients (E)** comprising at least one **cross-linking agent or cross-linking system**, whereby a mixture is comprised of the following quantitative proportions (in % by weight) based on the sum of the four components (A, B, C, D):

<i>thermoplastic synthetic resin (A)</i>	5 to 20 wt%
<i>polyethylene (B)</i>	25 to 5 wt%
<i>rubber (C)</i>	30 to 50 wt%
<i>plasticizer (D)</i>	50 to 25 wt%

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Applicant's arguments filed November 26, 2003 have been fully considered but they are not persuasive. Applicants argue that Ouhadi et al. do not disclose or suggest a thermoplastic synthetic resin (A) and a substantially non-crosslinked polyethylene (B) because disclosure of Ouhadi et al. is pertained to a functionalized polyolefin of composition (B). However, applicants fail to recognize that the invention as claimed does not exclude the functionalized polyolefin of Ouhadi et al. because applicants' claims are silent on a non-functionalized polyolefin.

Further, applicants argue that the claimed inventive polymer has improved "flowability" while the disclosure of Ouhadi et al. is pertained to improved "adhesion". However, such argued "flowability" and "adhesion" are not in the claims.

Applicants also argue that Ouhadi et al. teach away from "non-functionalized" use by reacting such polyolefins with maleated monomers or glycidyl monomers to increase adhesion, not improve flowability. However, the examiner disagrees because applicants' claims do not claimed a "non-functionalized polyolefins", instead applicants' claims are related to a "substantially non-crosslinked polyethylene". Applicants must also recognize that the polyolefins of Ouhadi et al. are "substantially non-crosslinked" even though the polyolefin has been functionalized.

***Allowable Subject Matter***

5. Claims 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 23, 28-31, 34-38 are allowed.

7. The following is an examiner's statement of reasons for allowance:

As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the closest prior art of Ouhadi et al. (US 5,843,577) to render the present invention anticipated or obvious to one of ordinary skill in the art.

*The invention of claim 23 relates to the **thermoplastic vulcanizate** of claim 21 where the thermoplastic synthetic resin (A) is a **polypropylene based homopolymer, block polymer or copolymer in conjunction with high crystallinity.***

*The invention of claims 28-38 relates to a method for making a **thermoplastic vulcanizate** comprises of four components (A, B, C, D), notably*

- *a thermoplastic synthetic resin (A);*

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- a substantially non-cross-linked polyethylene (B);
- a rubber (C) having a degree of cross-linking of  $> 90\%$  and being compatible with the thermoplastic synthetic resin (A) in regard to the phase inversion; and
- a plasticizer (D);

as well as of the **standard blend ingredients (E)** comprising **at least one cross-linking agent or cross-linking system**, whereby **the mixture is comprised of the following quantitative proportions (in % by weight) based on the sum of the four components (A, B, C, D):**

Thermoplastic synthetic resin (A)	5 to 20 wt%
Polyethylene (B)	25 to 5
Rubber (C)	30 to 50 wt%
Plasticizer (D)	50 to 25 wt%

wherein the rubber (C) in the still-uncured state is first mixed with a plasticizer (D) and the standard blend ingredients (E) in a roll or screw extender, whereby the standard blend ingredients still do not yet contain a crosslinking agent or crosslinking system.

The closest prior art Ouhadi et al. (col. 13, claims 1, 5) disclose a process for preparing a composition comprises 100 parts by weight of thermoplastic elastomer which has been fully cured which is equivalent to applicants rubber (C) (col. 13, claim

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5), and 3 to about 60 parts by weight of a modifier comprising a copolymer 10 to 90 weight percent of a functionalized polyolefin with about 90 to 10 weight percent of a polyamide which can be view as applicants "thermoplastic synthetic resin (A). However, Ouhadi et al. are completely silent on a process which includes a step of adding a standard blend ingredients (E) comprising at least one cross-linking agent or cross-linking system. Regarding claim 23, the closest prior art Ouhadi et al. are silent on composition comprising a polypropylene based homopolymer, block polymer or copolymer in conjunction with high crystallinity. Therefore, it would not be apparent to one of ordinary skill in art to use the process teachings of Ouhadi et al. to obtain the process invention of claims 23, 28-38. Therefore, the invention of claims 23, 28-31, 34-38 is allowed and claims 32-33 are objected to as being dependent upon a rejected base claim.

### ***Conclusion***

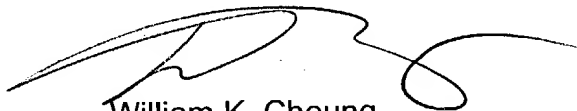
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1300.

A handwritten signature in black ink, appearing to read 'William K. Cheung', with a stylized flourish at the end.

William K. Cheung

Patent Examiner

February 14, 2004